

2000 5 1 2000 4 27 가 60/200,722 ,
 2000 5 1 가 60/200,960

(stylus)가
 (sensing surface)
 (membrane)
 가

(高) 가

(; 1mm 2cm)

가 (drawing) (pointing)
 (booklet) (top)()
 가

5,686,705

5,877,458 5,877,458 5,686,705

05 5,877,458 () 5,686,7

1 4 5,686,705 5,877,458
 1 (10) 가 1 , 3 1 (12, 14, 16) , 2 3 (24, 26,
 28) (30) 가 (10) 가 ()
 22) (20) (18) (30) 2 가
 DC (10) (P) (rf) 가 (12, 14, 16) 가
 3 (12,14,16) rf 가 (14) (30) (20)
 (12) rf 가 (grounded)
 2 (12, 16) 가 (20)
 (20) (12, 16) 가 (, 2 X) 가 X Y 가
 (20) 2 (, 2 Y)

3 (sheet; 100) 5,877,458
 (102, 104, 106) (100) ()
 (108, 110, 112) (100) (102, 104, 106) (122) (1
 26, 128, 130) 가 rf (124), (134), (132, 136) 가 (126, 128, 130)
 (132, 136)

가 (138, 140) (102, 104, 106) rf rf
 (142)

(116) (118) (120)
 , (144) , (ADC; 146) . ADC(146)
 (142) (142) (150)
 RAM(145), ROM(147), (148), (154)
 (152)

rf 가 (102, 104, 106) (100)
 (map, 114A) , (102, 104) ,
 (100) , ROM(147) 가
 가 ,
 (102, 106) (114B)
 가
 2 , 3 (P)

4 2 (701, 702) (globe) 3
 가 (601, 602) (701, 702)
 (701) (710, 711, 712) (702) (740, 741, 742) (730, 750)
 (722) (760, 761) (770, 771, 772, 773) , (701, 702)가 (100)
 (710, 711) 2 가
 (100) 가

가 5,686,705 5,877,458 가
 가 5,686,705 5,877,458 (100) (701, 702)

ys of Emeryville, CA) (LeapFrog To
 (EXPLORER GLOBE ™)
 5,686,705 5,877,458
 가 가
 2 가
 가 가 가 (701)

5,686,705 5,877,458
 5,686,705 5,877,458
 , 2

4 (100 701)
 (701, 702) (rim) (701, 702) 가 , (701, 702)
 가 가
 (;)
 (100) , (100)
 가
 , 5A 5B

e) ; 1 2 가 가
(resistive strip)

, 1 2

, 가

3

1

2 1

3 1

4

5a

5b 5a

6a (radiative fingers)

6b 6a
(strip)

7 6a

8 6a 가

9 6a

10a

10b 10a 가

11

12

(V2') 6a (666) (662) (V3') (V1') (668) (664) (V4')

가 가 가

2 2 2

가 (i) (ii) (iii)

2 2 2

가 2 1 2

6b (632) (601) (601) (601) 가 가

7 (680, 690) (600) 2 (680 690) 7

P 가 1 2 가 2 5 5

가 가

1. 가 ;

2. (gradient voltage) 가 .

3. 가 .

4. 가 ;

5. 가 .

4 , 1 DC : $P_{Top-G}; P_{Top-C}; P_{Bottom-G}; P_{Bottom-C}$ 가 'G' , 4 가 'C' 가 .
 $P_{Top-G}/P_{Top-C} = P_{Top}$, $P_{Bottom-G}/P_{Bottom-C} = P_{Bottom}$ 가 .
 (, P_{Top} , P_{Bottom} , 가) .

가 . , 1 (' ') 15a (1510) ,
 2 가 , (1560) ' ' , (1510) 15b ,
 , 2 (' ') , (1560) (1560)

3 , 6 (6 state drive algorithm)

1. 가 .

2. (gradient voltage) (1520) 가 .

3. (1520) 가 .

4. 1 가 , 3 2 가 , (156)

5. 2 (1560) 가 , 3 2 가 ,

6. 가 .

component) , 1 5 (measurements) , 1 DC (c) , 5
 (field potential values) , $P_{Top-G}; P_{Top-C}; P_{Bottom-G1}; P_{Bottom-G2}; P_{Bottom-C}$.

가 (pair) (gradient measurement)
 (ratio) $P_{Top-G}/P_{Top-C} = P_{Top}$,
 2 $P_{Bottom-G1}/P_{Bottom-C} = P_{Bottom1}$, $P_{Bottom-G2}/P_{Bottom-C} = P_{Bottom2}$. 3

P_{Top} , $P_{Bottom1}$, $P_{Bottom2}$ (positional meaning) (equipotential distribution)
 2 (drive configurations) 2 (second co-ordinate) 2
 834) 가 가 (800) 가 8 (830, 832, 810, 812, 814, 816) 2 (802, 804) rf 29-30% 가 가 (810, 812, 814, 816) (820, 822, 824, 826) (820, 822, 824, 826) (820, 822, 826) 824, 826) 가 가 (820, 822, 824, 826) (820, 822, 824, 826) (601) (resistivity) (strip) (holes)
 가 17
 가 (680, 690)
 0) (910) 2 (905) 1 가 (92) (910) 1 (920) (930, 932, 934, 936, 938)) 가 2 (940) 가 (in phantom) 1 (920) (905) 가 2 (940) (950) 2 (940) (950) 2 ABCD AB D C P (significant symmetry) 가 BC AD P P
 Mylar Mylar (paper) xographic) (graveur) Mylar (file)
 (flat vinyl sheet) 가 2
 가 1 (1005) 1 (1000) 1 (1010) 가 10A (1005) (1030) (1040) (1050) (1060) , 가 (in phantom) 2 가 2 (1000) (1000) (cone sha 10B 10B P* 10B) pe) , P* (local symmetry) 가

(position finding problem)
 2 . 1
 . 2 (translation algorithm)
 (complex surface) .
) (1130) (1104) (1102) , 11 (1120) (1110)
 , (1104) P - 가 2
 .
 12 (sheet) (sheet) 가 (1200) (120
 3) , (1201 1202) , 2 (1210)
 . 13 2 (1310) 가 12
 (1304)가 (1310) (1310) (1330)
 (1320) 가 , (1340 1350) 1 .
 가 ,
 . 가, 2 (capacitive coupling)
) , 가 가 , 가 ,
 가 , 가, (finger width) 가 ,
 가 , (cross coupling) .
 (balancing) , 가 가 , (object
 s) .
 가 가 2
 2 , (overlap) 가 . 2
 , (to address), 2
 . (1410) , - 가 , (1420) 14B
 (field)
 , 가 가
 , (geometry)
 (insulating sheet)
 , 가 가 2
 2 . 2 (sensitivity)
 .
 16 12-14
 1601) (1621) , (1621) 가 (160
 9) (1611) (1617) . (1601)
 (1618) (1620) (1619)
 .
 16 , (1601)
 (1603) (1602) . (1602) /

(1602) 가 , (1602) ,
 (1602) (1603) .
 (1603) - (1620) 2 .
 가 2 .
 (1604) 가 5 , (1603) (wire shielding,1605) 가 .
 (1606) 가 (1608) (1607) 2 .
 (1610) 가 . 가 (1611)
 (1612) (1612) DC (DC rejection function) ,
 (1613) (1613) ,
 (1613) (1615) 1616) (1614)
 (constant slope discharge t
 echnique) (1614) (1616) 가 (1615)가 (16
 (synchronous demodulation)가 (1613) (1601)
 16) (1614) (1613) ,
 (1601) .
 17 (1603) (1607)가 16
 . 17 (1607) (1607)
 가 .
 (interactive books) 18
 (booklet,1807) (sheets) 16 (1609) (180
 가 (1804) , (1801) (1803) (18
 7) (1804) (1806) 가 (1804) 가 (18
 07) 가 .
 (1621) (resolution) 가 , 가 (edges) 4
 가 3 (a factor of three) , 가
 (platform)
 (dual) rf ,
 - 2000 5 27 60/200,725, '
 .
 (rear view) 20 (globe) 15A
 510) (1505) (resistive strip) , (1
 (1530, 1580) (radially directed) (1550)
 (1560) (1550)
 (azimuthal seperation)가 (1550)
 (altenate) 15A 15B
 15C (superimposed) 가
 (ink process)
 2 (r,)
 15C (hemispherical shape)

19 (circunferential) (1907) (radical finger elements) 가
 1 (longitudinally) 가 (1910) (

1903) 2 가 (1904) 6

20 2 (2001), (2003) (2002) 가
 (globe) (2003) (2008) (2003) (2

009) (2006) 가 (2007) (2004) (2006) (2005)

(57)

1. (magnitude) (gradient) ;

a) ,

b) (along) 가 (finger elements) ,
 가 (intervals) 가

1 2. ,

1 3. ,

3 4. ,

1 5. ,

4 6. ,

(line)

7.

1 ,

(curved)

1 8. ,

1 ,

1 9. ,

1 ,

1 10. ,

1 ,

10 11. ,

10 ,

가

11 12. ,

11 ,

11 13. ,

11 ,

가

11 14. ,

11 ,

15.

a) ,

가

가

b) , ,

가

가

15 16. ,

15 ,

15 17. ,

15 ,

15 18.

(equator) (along)

15 19.

가 가

15 20.

15 21.

15 22.

22 23.

22 24.

가

25.

a) 가

가

b)

가

가 가

25 26.

25 27.

25 28.

(end)가

(encircle)

25 29.

가 가

25 30.

(azimuthal)

25 31.

25 32.

(oriented)

25 33.

33 34.

가

34 35.

35 36.

37.

a) 1 2

b) 1

i) 1 , 가

ii) , , 1

c) 2 ,

i) 2 , 가

ii) , , 2

, 1 1 2 2 0 180

37 **38.** ,

37 **39.** ,

1 1 2 2

37 **40.** ,

1 가 .

37 **41.** ,

2 가 .

40 **42.** ,

2 가 .

42 **43.** ,

43 **44.** ,

1 1 , 1

44 **45.** ,

2 2 , 2

45 46. ,

1 1 2 2

45 47. ,

1 2

37 48. ,

a) 1 1 1 ;

b) 2 2 1 ;

c) 2 1 2

37 49. ,

1 가 , 1

49 50. ,

2 가 , 2

37 51. ,

37 52. ,

37 53. ,

53 54. ,

가

55.

54 ,

56.

a) 1 2 ,

b) 1 ,

i) 1 , 가

ii) , , 1

c) 2 ,

i) 2 ,

가 2

ii) , , 가 , 가 2 가 2

, 1 1 1 2 2 0 180

57.

56 ,

58.

56 ,

1 1 2 2

59.

56 ,

1 가 .

60.

56 ,

2 가 .

61.

59 ,

2 가 .

62.

61 ,

1 1 , 1

62 63. ,

1 (geodetic latitudes)

62 64. ,

61 65. ,

2 2 , 2

65 66. ,

2

65 67. ,

56 68. ,

1 가 2

68 69. ,

2

56 70. ,

70 71. ,

가

71 72. ,

73.
(electrographic)

- a) 1 2 ;
- b) 1 2
- c) 1 ,
- i) 1 , 1 가 1
- ii) , , 1 , 2 ,
- i) 2 , 2 2
- ii) , ; 2 1 1 1 2 0 1

74.

73 , 1 2

75.

73 , 1 1 , 2 (essentially) 2 , 1 2

76.

73 , 1 2

77.

73 , 1 (drive signal transmitter) 2

77 78. , ,
가 1 2

77 79. , ,

79 80. , ,

80 81. , ,

81 82. , ,
(receiving amplifier)

82 83. , ,

, DC

83 84. , ,
(electronic lead)
가 가

84 85. , ,
(resistivity) (variance)

85 86. , ,
2 1 ,

73 87. , ,

가 ,

가 가 (pinning)

88.

84 , ,

1 2 가 ,

가 (along) 가 ,

89.

84 , ,

- (locating algorithm) 1 2

, - (subsequently)

90.

84 , ,

1 가 (insulating sheet) (top) 2 가
(bottom)

91.

90 , ,

1 , (match) 가 2 ,

92.

91 , ,

2 , ,

93.

90 , ,

가

94.

93 , ,

95.

92 , ,

가

95 96.

96 97.

97 98.
(pointing stylus)
가

98 99.
1 2 5 (Five State Drive Algorithm)
5 (subsequently)

99 100.
가

100 101.
가 가 가 가

- 102.
- a) 1 2 ;
 - b) 2 1 3
 - c) 1
 - i) 1 1 가 1

ii) , , 1
2 ,

i) 2
가 2 ,

ii) , , 가 가 가²
1 1 2 2 0
, 1 1 2 2

103.
102 ,
1 2

104.
102 ,
1 1 , 2 2 , 1
2

105.
102 ,
1 2

106.
105 ,

- a) ;
- b) 1 ;
- c) 1 ;
- d) 2
- e) 2

107.
106 , , 1 , 3
2

106 **108.** , ,
가 1 2 .

108 **109.** , ,
.

109 **110.** , ,
,
(synchronize)

110 **111.** , ,
-
.

111 **112.** , ,
.

112 **113.** , ,
, DC .

113 **114.** , ,
가 , 가

114 **115.** , ,

115 **116.** , ,

2 1 ,

117.
102 , ,
가 ,
가 가

118.
114 , ,
1 2 가 ,
가 가 가 ,
가

119.
104 , ,
- 1 2 , -

(subsequently)

120.
106 , ,
1 가 2 가

121.
120 ,
1 , 2 ,
가

122.
121 ,
2 , ,

123.
120 ,
가

124.
123 ,

122 125. ,

가

125 126. ,

126 127. , ,

127 128. , ,

가

128 129. , ,

6 1 2 6 (Six State Drive Algorithm) ,

129 130. , ,

가

130 131. ,

가 , , , 가 가 ,

가 가

131 132. ,

가

133.

- a) 1 가 , 1 1 1 , 1 ;
- b) 1 2 ;
- c) 2 , 2 2 , 2 ' , 1 2 2 0 ;
- d) 가 2 1 ;
- e) 2 1 1 2 ;
- f) ;
- g) ;
- h) ;
- i) 1 2 ;
- j) 가 , 가 (five drive-signal states) ;
- 1 2 : 5 -
- i) 1 2 0 가;
- ii) 1 , (gradient) 가 2 , 0 가;
- iii) 1 , 가 2 , 0 가;
- iv) 2 , 가 1 , 0 가;
- v) 2 , 가 1 , 0 가;
- ; k) ;
- l) ;
- m)
- n)

134.

133

a) (i)

$P_{\text{Top-G}} =$ (i)

(ii)

$P_{\text{Top-C}} =$ (i)

(iii)

$P_{\text{Bottom-G}} =$ (i)

(iv)

$P_{\text{Bottom-C}} =$ (i)

(v)

b) $P_{\text{Top-G}} / P_{\text{Top-C}}$

P_{Top}

c) $P_{\text{Bottom-G}} / P_{\text{Bottom-C}}$

P_{Bottom}

d) al meaning)

(field)

P_{Top}

P_{Bottom}

(position

135.

134

P_{Top} P_{Bottom}

가

136.

135

1

137.

가

가

a) 1

가

1

1

1

1

1

b) 1

2

c) 2

2

2

2

2

가
가

가

가

d) 1

2

2

2

1

2

1

0

1

2

- e) 가 2 1 ;
- f) 2 1 2 ;
- g) ;
- h) ;
- i) ;
- j) 1 2 ;
- k) 가 6 - (six drive-signal states) 가 ;
- i) 1 2 0 가;
- ii) 1 , 가 2 , 0 가;
- iii) 1 , 가 2 , 0 가;
- iv) 2 , 1 , 0 가; 1
- v) 2 , 1 , 0 가; 2
- vi) 2 , 가 1 , 0 가;
- l) ;
- m) ;
- n)
- o)

138.

137 , ,

- a) (i) ;
- $P_{Top-G} =$ (i) (ii) ;
- $P_{Top-C} =$ (i) (iii) ;

$P_{\text{Bottom-G1}} = \text{(i)}$ (iv) ;

$P_{\text{Bottom-G2}} = \text{(i)}$ (v) ;

$P_{\text{Bottom-C}} = \text{(i)}$ (vi)

b) $P_{\text{Top-G}} / P_{\text{Top-C}}$; P_{Top}

c) $P_{\text{Bottom-G1}} / P_{\text{Bottom-C}}$ $P_{\text{Bottom-G2}} / P_{\text{Bottom-C}}$ $P_{\text{Bottom-G1}}$ P_{Bo}
 ttom-G2 2

d) P_{Top} , $P_{\text{Bottom-G2}}$ $P_{\text{Bottom-G1}}$

139.

138 , P_{Top} P_{Bottom} , 가

140.

139 , 1

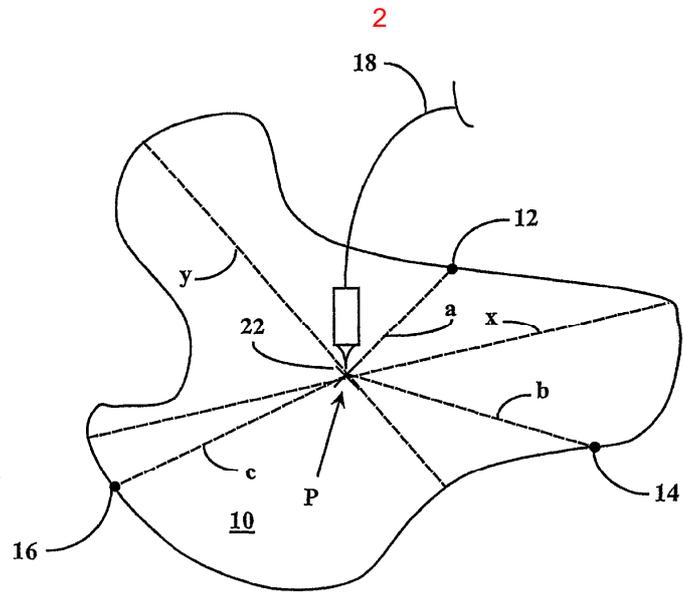
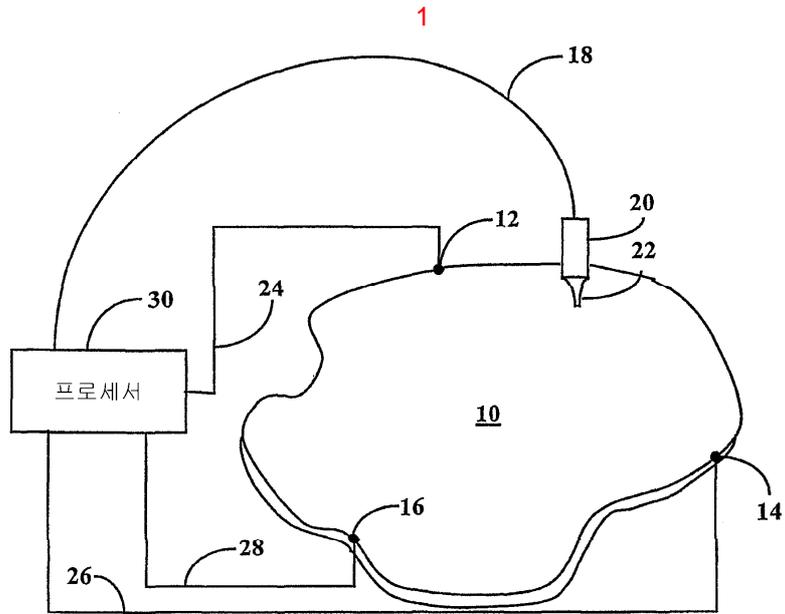
141.

137 , 1 2 , 1
2

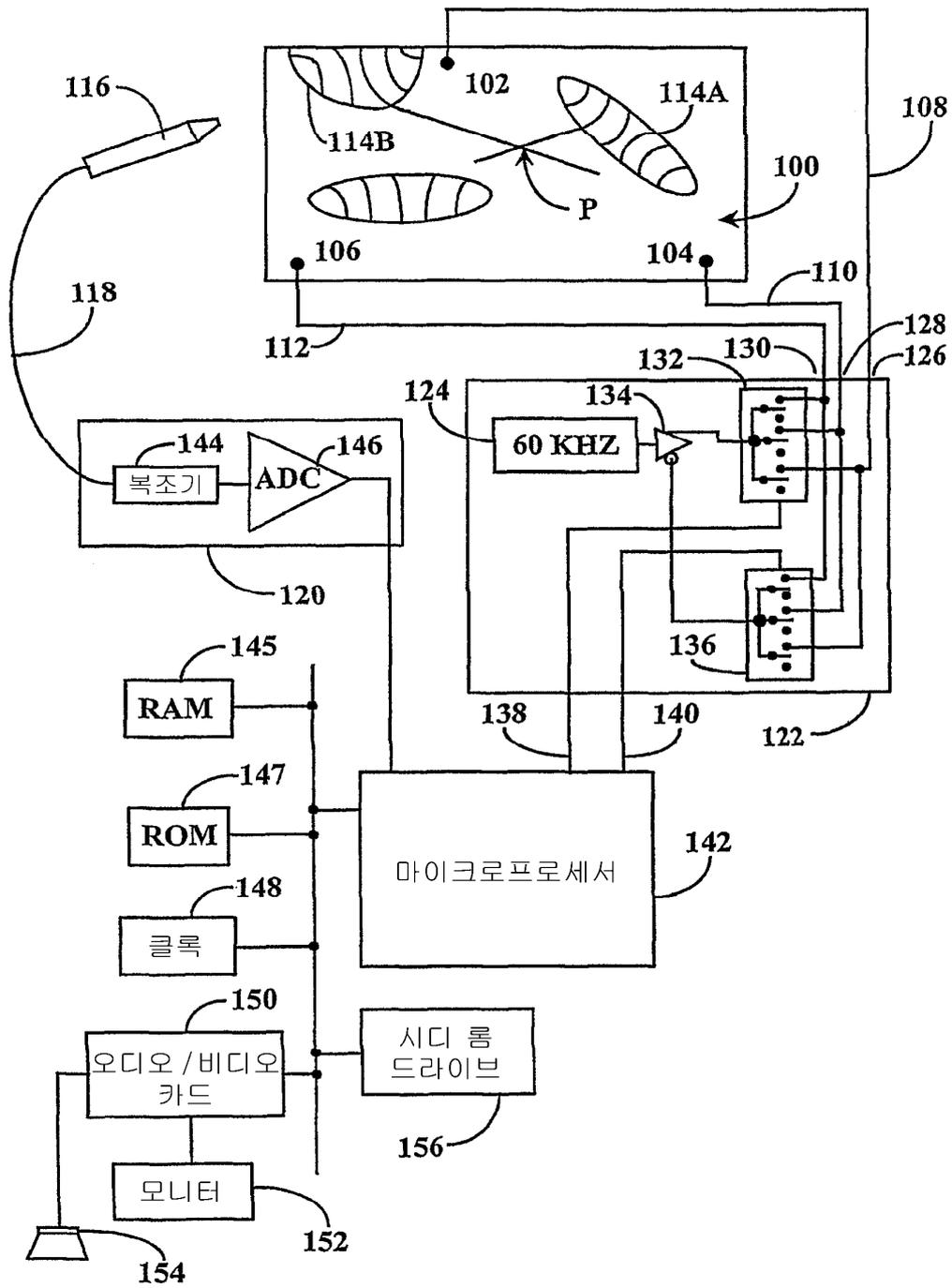
(680, 690)
(680, 690)

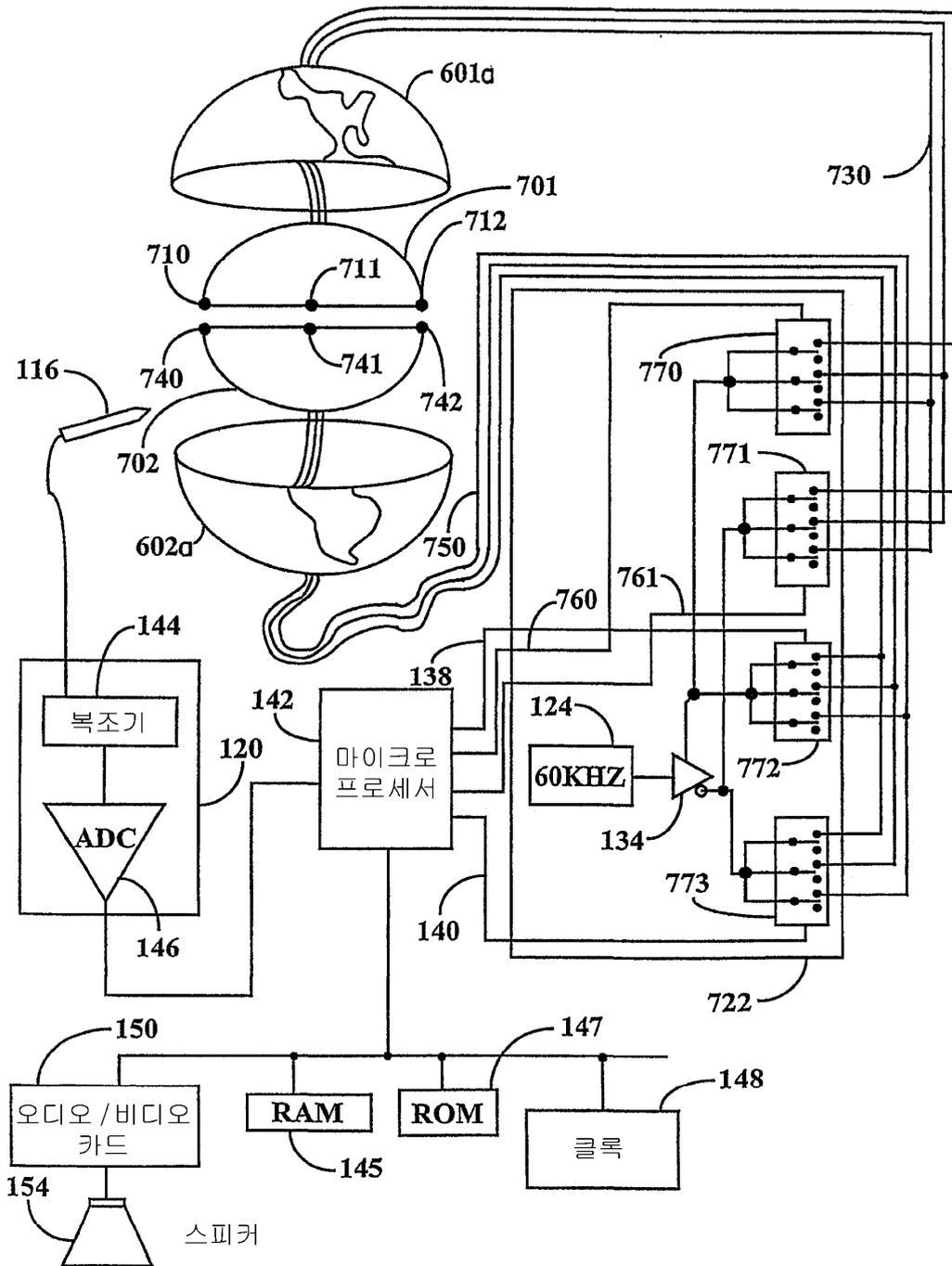
(680, 690)

6a

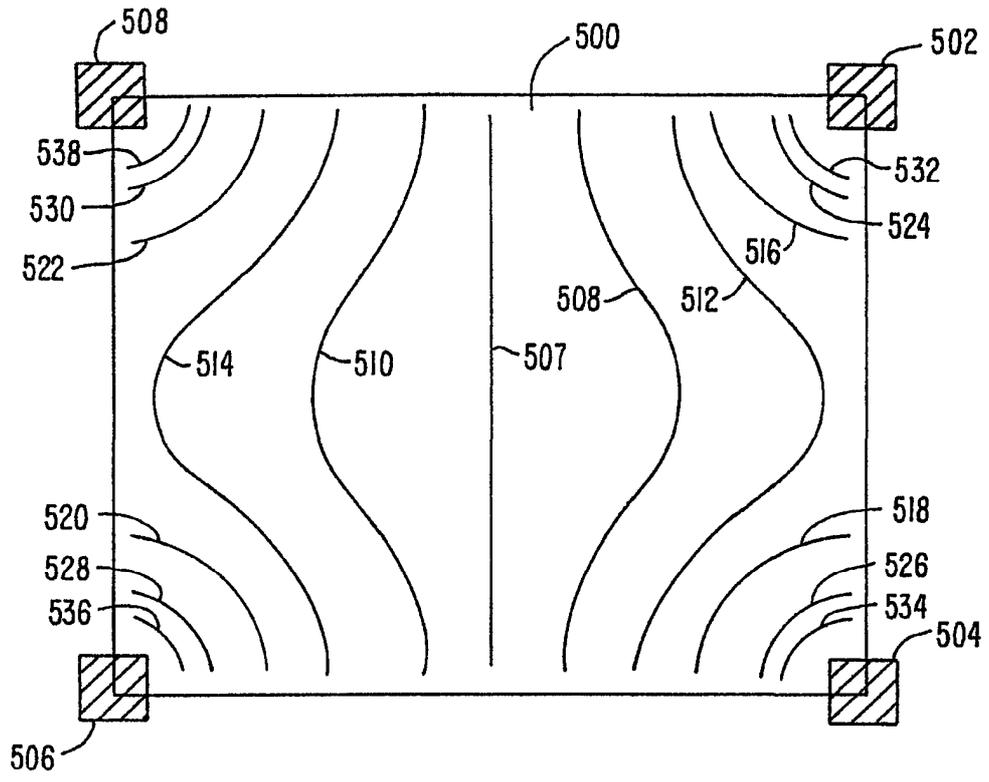


3

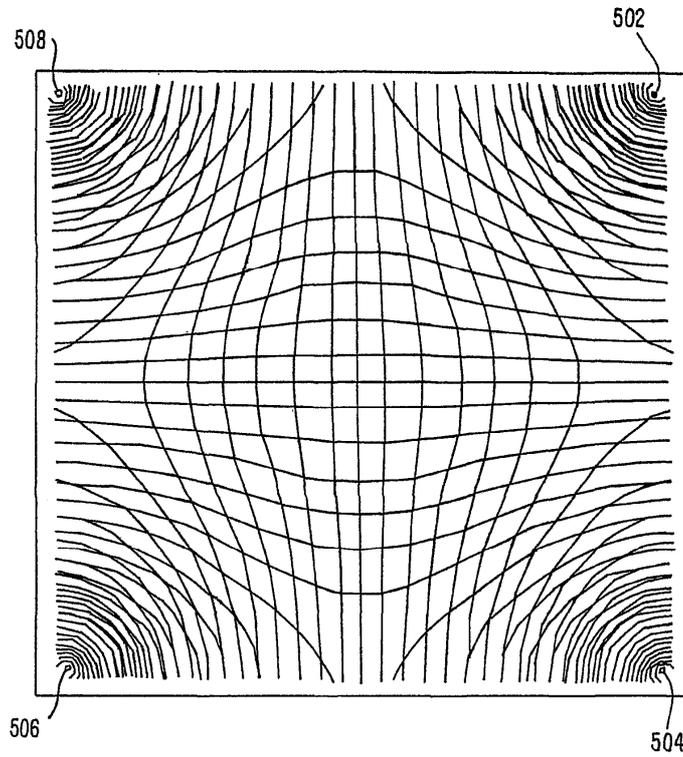




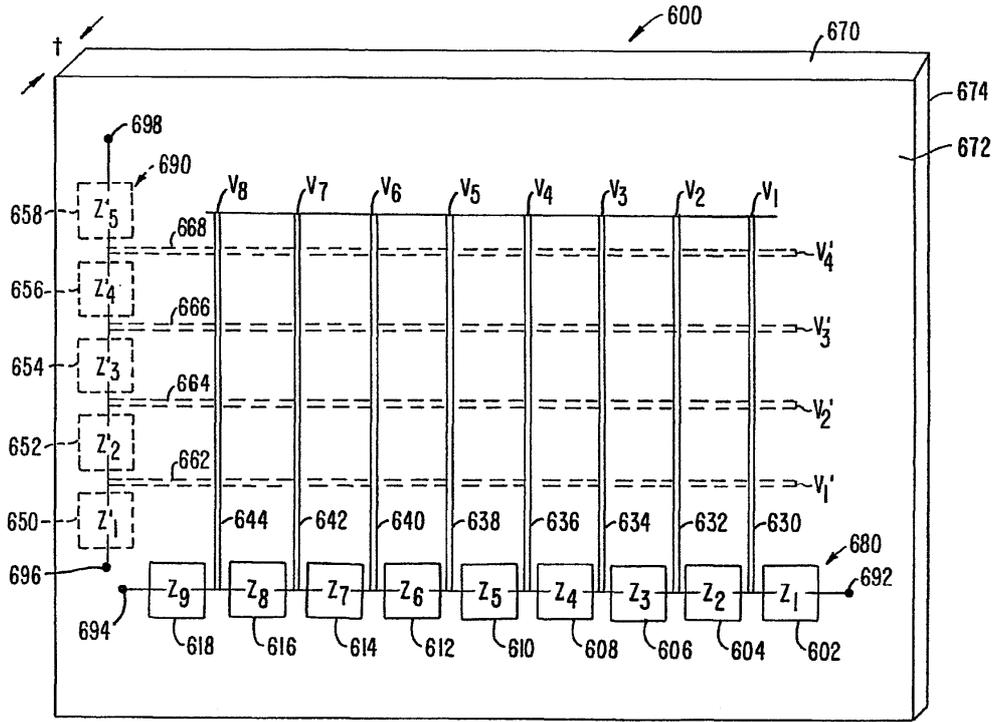
5a



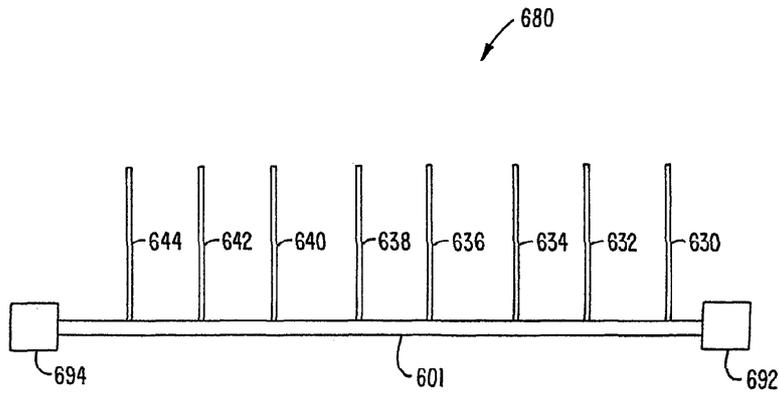
5b



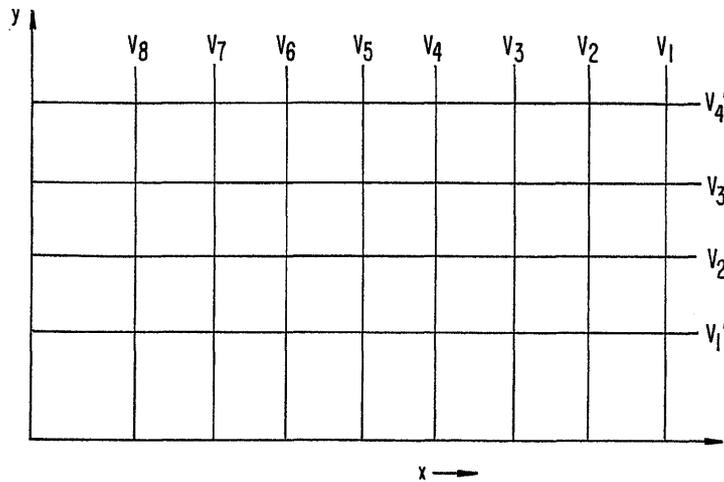
6a

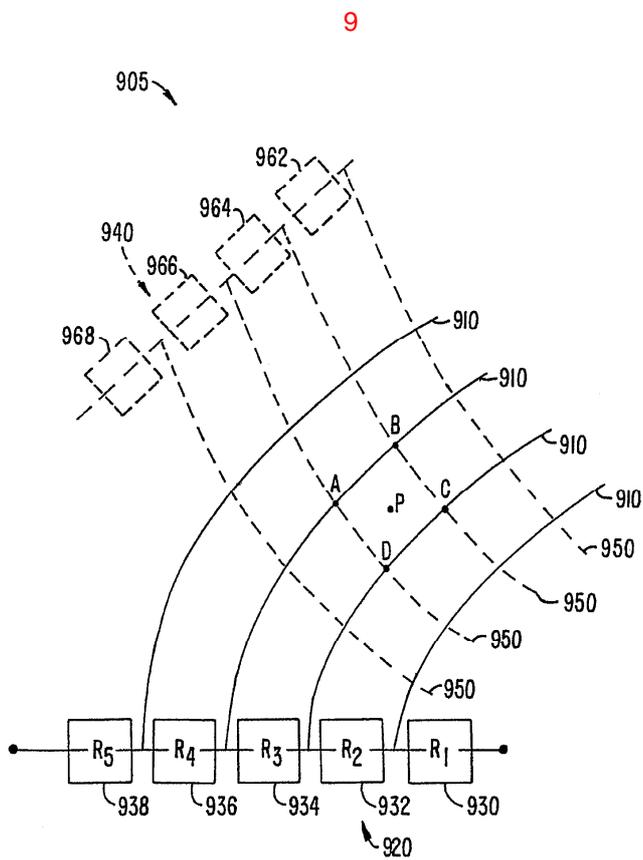
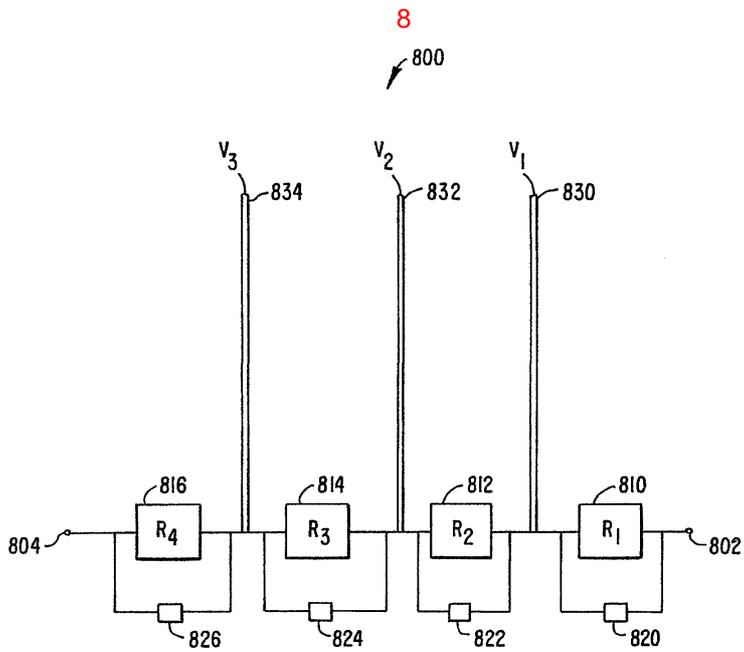


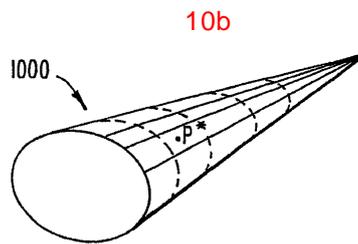
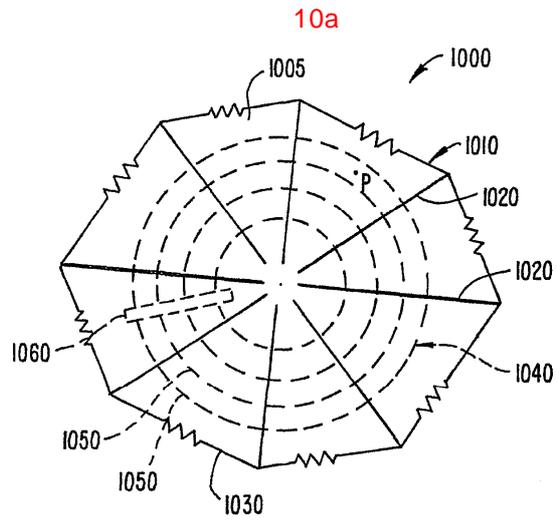
6b



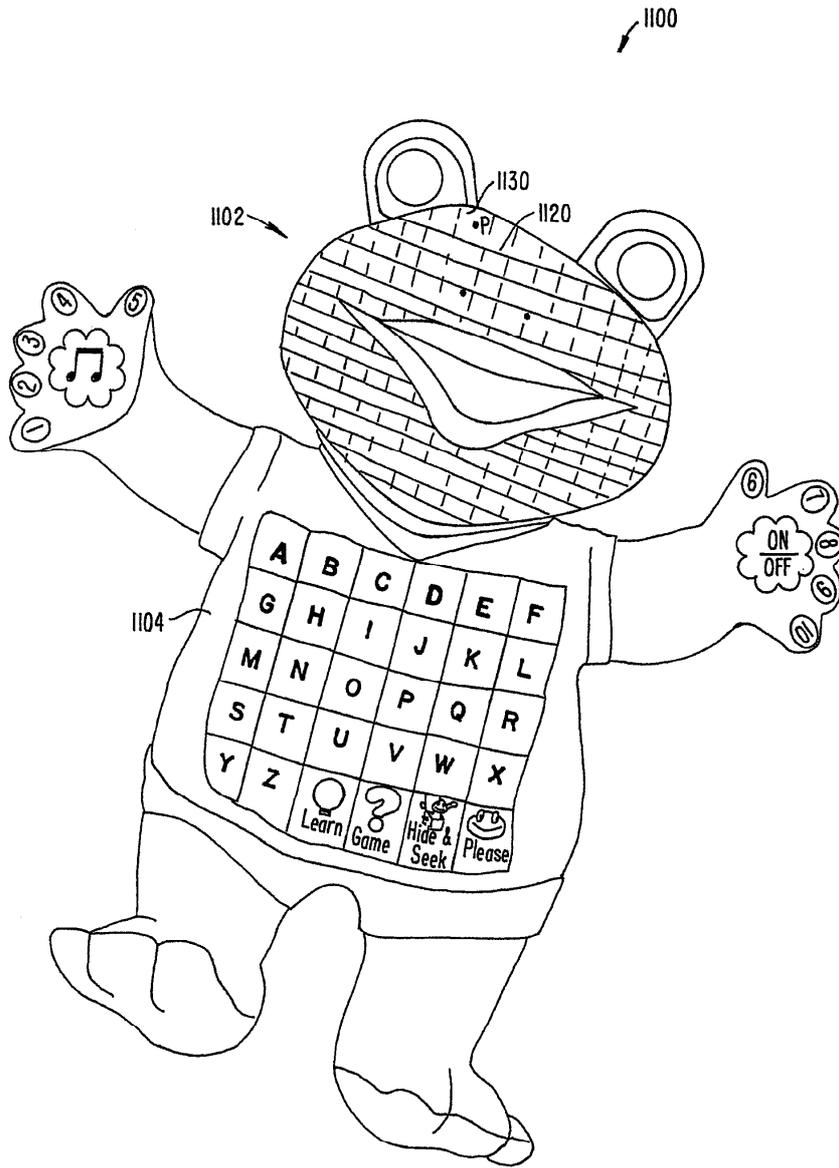
7



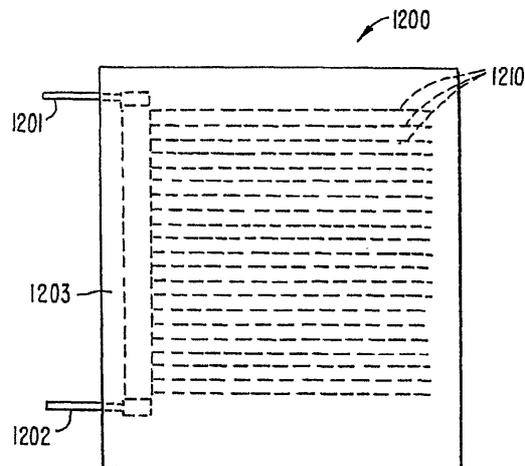




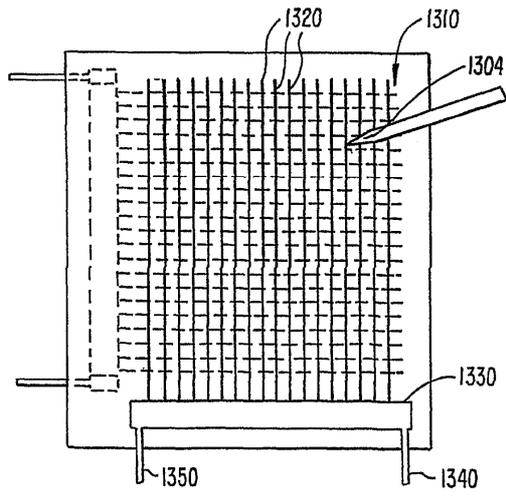
11



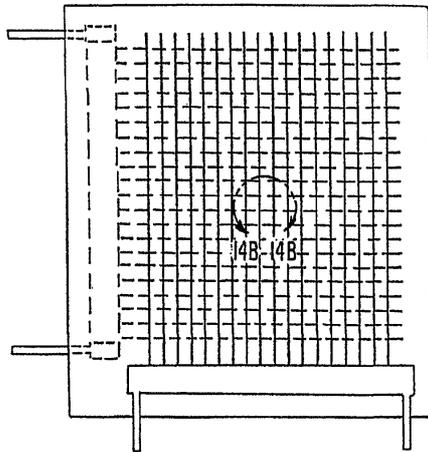
12



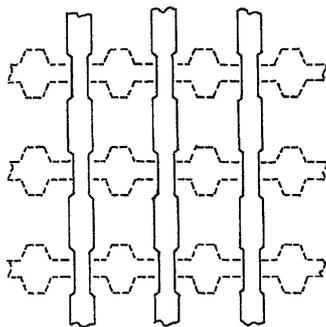
13



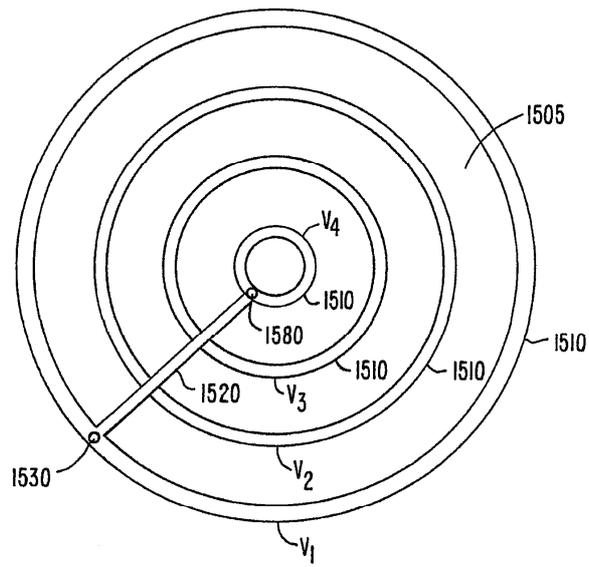
14a



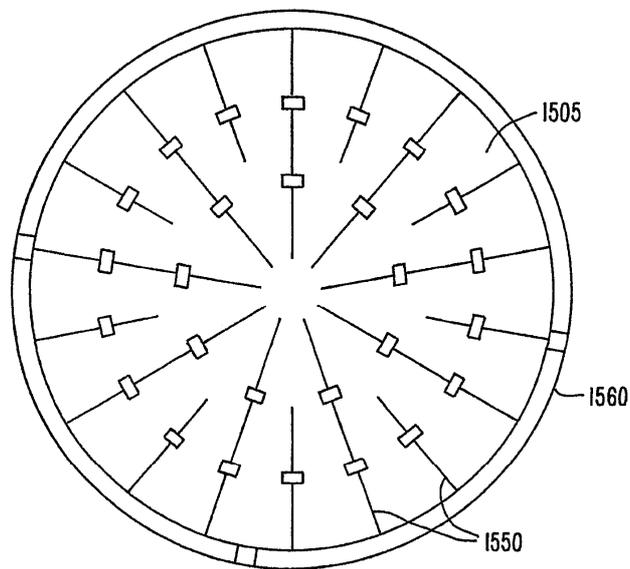
14b



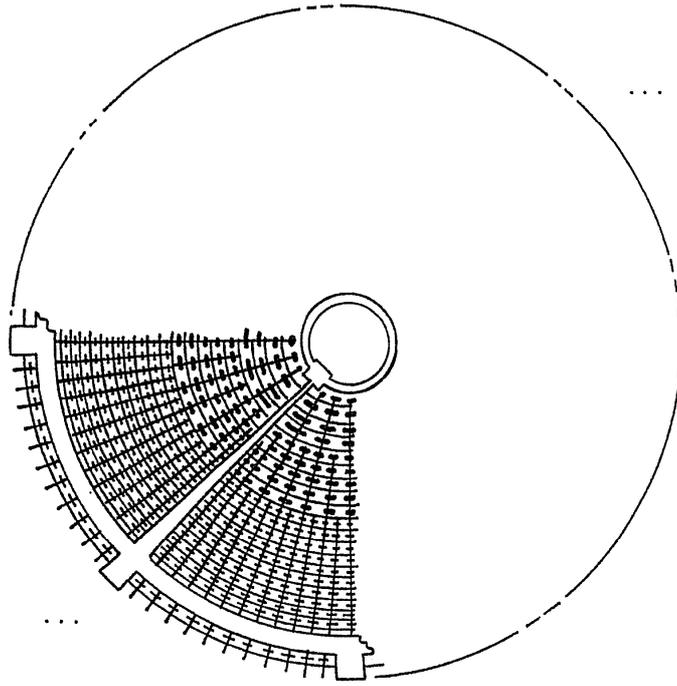
15a



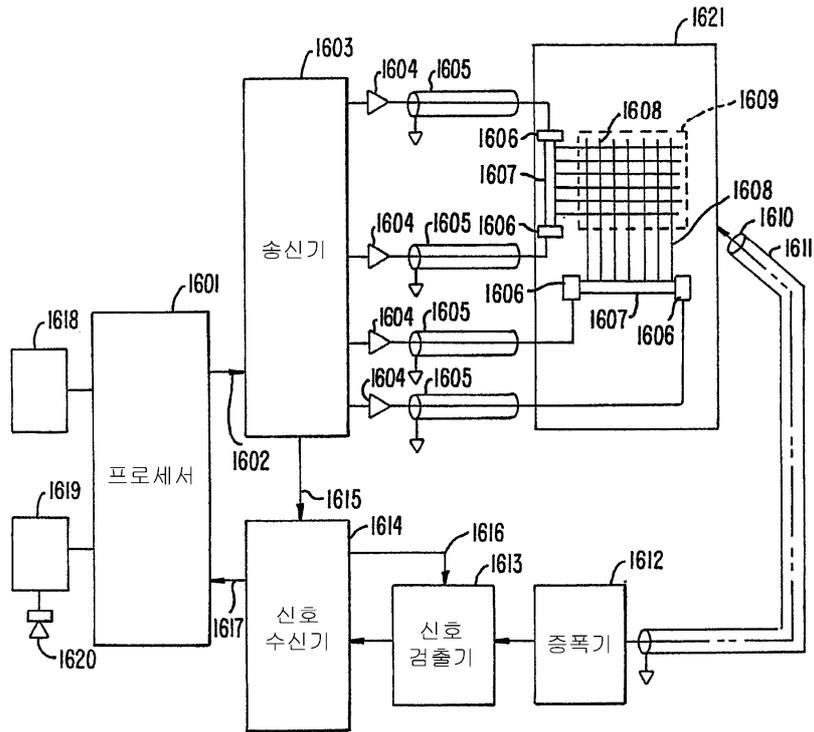
15b



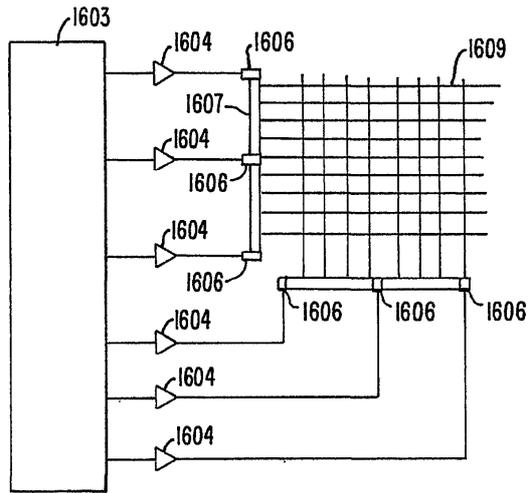
15c



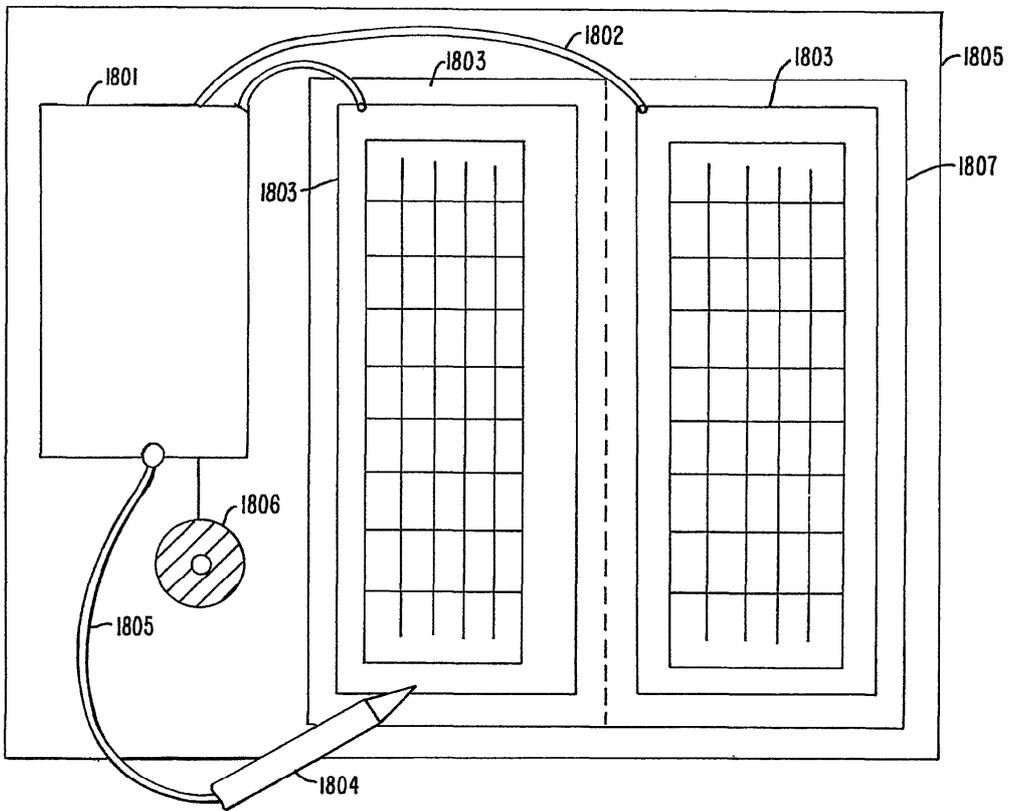
16



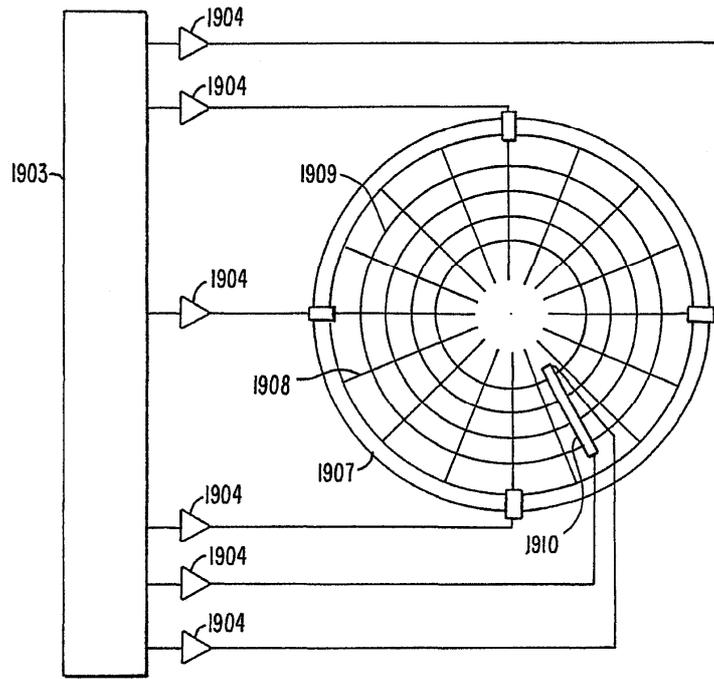
17



18



19



20

